4. (Amended) The production method according to Claim 1,

wherein the main chain of the macromonomer (I) comprises a vinyl polymer obtained by living radical polymerization.

9. (Amended) The production method according to Claim 1,

wherein the main chain of the macromonomer (I) comprises a vinyl polymer obtained by polymerization of a vinyl monomer using a chain transfer agent.

13. (Amended) The production method according to Claim 1,

wherein the macromonomer (I) is obtained by substituting a compound having a radical-polymerizable carbon-carbon double bond for a terminal halogen group of a vinyl polymer.

14. (Amended) The production method according to Claim 13,

wherein the macromonomer (I) is obtained by reacting a vinyl polymer having a terminal halogen group represented by the general formula (2) :

$-CR^1R^2X$ (2)

wherein R^1 and R^2 each represents a group attached to an ethylenically unsaturated group of a vinyl monomer and X represents a chlorine, bromine or iodine atom, with a compound represented by the general formula (3) :

$M^+{}^-OC(O)C(R)=CH_2$ (3)

wherein R represents a hydrogen atom or a monovalent organic group containing 1 to 20 carbon atoms and M^+ represents an alkali metal or a quaternary ammonium ion,
for substitution for the terminal halogen group.

15. (Amended) The production method according to Claim 1,

wherein the macromonomer (I) is obtained by reacting a hydroxy-terminated vinyl polymer with a compound represented by the general formula (4):

$XC(O)C(R)=CH_2$ (4)

wherein R represents a hydrogen atom or a monovalent organic group containing 1 to 20 carbon atoms and X represents a chlorine, bromine atom or a hydroxyl group.

16. (Amended) The production method according to Claim 1,

wherein the macromonomer (I) is obtained by reacting a hydroxy-terminated vinyl polymer with a diisocyanate compound and reacting the remaining isocyanato group with a compound represented by the general formula (5):

HO-R'-OC (O) C (R) $=CH_2$ (5):

wherein R represents a hydrogen atom or a monovalent organic group containing 1 to 20 carbon atoms and R' represents a divalent organic group containing 2 to 20 carbon atoms.

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20. (Amended) A production method of a branched polymer which comprises polymerizing a macromonomer (I),

said macromonomer (I) being a vinyl polymer obtained by radical polymerization and terminally having one polymerizable carbon-carbon double bond-containing group per molecule,

wherein polymerization of the macromonomer (I) is conducted in the manner of living radical polymerization.

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29. (Amended) The production method according to Claim 1,

wherein the copolymerization of the macromonomer (I) with a copolymerizable monomer (II) other than said macromonomer (I) gives a graft copolymer.

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33. (Amended) A branched polymer obtained by the production method according to Claim 1.
